

AMENDMENT under PCT Article 19

1 (Amended). A disk cartridge comprising

a case body for housing a disklike information storage medium in a rotatable position, the case body including: first and second side surfaces that extend parallel to an inserting direction, in which the disk cartridge is inserted into a disk drive for recording and/or reproducing information, and are opposed to each other; a lower surface sandwiched between the first and second side surfaces; a head window, cut through a portion of the lower surface, for partially exposing the information storage medium; a shutter opening groove provided on the first side surface so as to extend in the inserting direction and to slide a shutter opener of the disk drive therein; and a holding recess, which is positioned at the bottom of the shutter opening groove so as to get engaged with a gripping member of the disk drive while the disk cartridge is loaded in the disk drive;

a shutter, which has an operating portion that protrudes into the shutter opening groove and which opens or closes the

head window by sliding parallel to the inserting direction;
and

an elastic member for applying elastic force to the shutter so as to close the head window.

2. The disk cartridge of claim 1, wherein the head window has been cut open through the first side surface and the lower surface so as to reach the first side surface.

3. The disk cartridge of claim 2, wherein the head window has been cut open through the first side surface so as not to interfere with the shutter opening groove or the holding recess.

4. The disk cartridge of claim 3, wherein the head window includes a side window that has been cut open through the first side surface and that is located closer to the lower surface than the shutter opening groove is.

5. The disk cartridge of one of claims 1 to 4, wherein

the case body includes an upper half and a lower half, and

wherein the holding recess is defined by a rib of the lower half so as to form an integral part of the lower half.

6. The disk cartridge of one of claims 1 to 5, wherein the case body has a holding notch that has been cut through the first side surface and the lower surface and another holding notch that has been cut through the second side surface and the lower surface.

7. The disk cartridge of one of claims 1 to 6, wherein the case body includes an elastic member sliding groove, which extends parallel to the shutter opening groove to have the elastic member slide therein, and a recess located at one end of the elastic member sliding groove, the elastic member sliding groove and the recess being both provided on the first side surface, and

wherein while the head window is closed with the shutter portion, the elastic member engages with the recess, thereby keeping the shutter portion locked and fixed.

8. The disk cartridge of claim 7, wherein the shutter includes a shield, which covers the head window, and an unlocking member including the operating portion, and

wherein when the shutter opener contacts with the operating portion, the unlocking member disengages the elastic member from the recess and the shutter opener slides the shutter portion against the elastic force applied by the elastic member.

9. The disk cartridge of one of claims 1 to 7, wherein the case body includes a third side surface, which faces the disk drive when the disk cartridge is going to be inserted into the disk drive, and a fourth side surface opposed to the third side surface, and

wherein the shutter opening groove reaches the third side surface so as to form an opening on the third side surface.

10. The disk cartridge of one of claims 1 to 9, further comprising the disklike information storage medium with an information storage side, wherein the information storage

medium is housed in the case body such that the information storage side is partially seen through the head window when the shutter is opened.

11. The disk cartridge of claim 10, wherein the case body further includes an upper surface that is sandwiched between the first and second side surfaces and that is opposed to the lower surface, and

wherein the holding recess is positioned at the bottom of the shutter opening groove so as to be located closer to the upper surface than the information storage side of the information storage medium is when the information storage medium has been loaded into the disk drive such that information is readily reproduced from, or recorded on, the medium.

12. The disk cartridge of claim 10, wherein the holding recess is positioned at the bottom of the shutter opening groove so as to be located in the upper part of a space between the upper and lower surfaces of the case body.

13. A disk drive comprising:

a chassis;

a motor supported on the chassis and including a turntable;

a head, supported on the chassis, for recording and/or reproducing information;

a holder having an insertion port for inserting the disk cartridge of one of claims 1 to 12 and a space for holding the disk cartridge, the holder being rotatably secured to the chassis so as to take either a first position, at which the disk cartridge is insertable and removable through the insertion port without interfering with the turntable, or a second position, at which the information storage medium in the disk cartridge held in the space is mounted on the turntable;

a slider, which is arranged so as to slide with respect to the holder and which applies elastic force to the disk so as to eject the disk cartridge out of the holder through the insertion port; and

a gripping member, which is connected to the slider so as to get engaged with the holding recess of the disk cartridge,

wherein the gripping member is arranged on the holder so as not to interfere with the head when the holder is turned to take the second position with no disk cartridge held.

INFORMAL COMMENTS

1. According to the written opinion issued by the ISA, the novelty of the inventions defined by claims 1, 9 and 10 of the present application are denied based on the following Document No. 1 and the non-obviousness of the inventions defined by claims 1 to 4, 6, 7, 9 and 10 of the present application are denied based on the following Documents Nos. 1 through 5:

Document No. 1: Japanese Patent Application Laid-Open
Publication No. 7-036261

Document No. 2: Japanese Patent Application Laid-Open
Publication No. 2000-315371

Document No. 3: Japanese Patent Application Laid-Open
Publication No. 2001-283553

Document No. 4: Japanese Patent Application Laid-Open
Publication No. 7-153221 and

Document No. 5: WO 2001/004899

2. In response to this opinion, the applicant amended

claim 1 of the present application under Article 19(1) (Rule 46) to clarify the difference between the present application and the cited references. This amendment is based on Paragraphs Nos. [0060] through [0065], for example.

3. The amended claim 1 defines a disk cartridge that includes: a case body having a lower surface with a head window and first and second side surfaces; a shutter; and an elastic member. A shutter opening groove is provided on the first side surface to slide the shutter opener of a disk drive therein. At the bottom of the shutter opening groove, further provided is a holding recess to get engaged with the gripping member of the disk drive.

The shutter has an operating portion that protrudes into the shutter opening groove, and opens or closes the head window by sliding there. The elastic member applies elastic force to the shutter so as to close the head window. When the disk cartridge is loaded into the disk drive, the holding recess of the shutter opening groove gets engaged with the gripping member of the disk drive.

In the disk cartridge of the present invention, the shutter is subjected to the elastic force applied by the elastic member. Therefore, when the disk cartridge is not loaded into the disk drive, the shutter can close the head window just as intended, thus realizing a highly dustproof disk cartridge.

Also, while the disk cartridge is loaded in the disk drive, the shutter opener contacts with the operating portion of the shutter. As a result, the elastic member, which is applying elastic force to the shutter, applies force that pushes the disk cartridge out of the disk drive to the disk cartridge. In the meantime, the holding recess of the case body is engaged with the gripping member of the disk drive, thereby preventing the disk cartridge from popping out accidentally. Furthermore, the holding recess is positioned at the bottom of the shutter opening groove. That is why even if the gripping member is lifted to a certain degree from the holding recess, the gripping member will still be located within the shutter opening groove and its position will be regulated by the shutter opening groove. Therefore, the

gripping member does not disengage itself from the holding recess easily and can prevent the unwanted movement of the disk cartridge without fail. Besides, no extra holding recesses have to be provided in addition to that positioned within the shutter opening groove, and a narrow side surface of a small-sized disk cartridge can be used efficiently.

4. Document No. 1 discloses a disk cartridge having a notched recess **20** on a side surface of a cartridge body and an engaging recess **27** of a locking member provided for the notched recess **20**. However, the engaging recess **27** of the locking member is supposed to get engaged with a locked tab **21a** of the shutter, not the gripping member of the disk drive. Besides, the disk cartridge disclosed in Document No. 1 includes no elastic member for applying elastic force to the shutter. Consequently, claim 1 of the present application and claims 9 and 10 depending on that claim 1 have novelty with respect to Document No. 1.

Moreover, none of Documents Nos. 1 through 5 discloses the features of the present invention described above. Among

other things, neither the idea of using a narrow side surface of a disk cartridge efficiently by providing the holding recess for the shutter opening groove with multiple different functions nor the idea of enhancing the function of the holding recess by utilizing the structure of the shutter opening groove is suggested in any of those documents. Therefore, claim 1 of the present application and claims 2, 3, 4, 6, 7, 9 and 10 depending on, or citing, that claim 1 involve an inventive step and are non-obvious.

5. For these reasons, the inventions defined by claims 1 through 4, 6, 7, 9 and 10 of the present application have novelty and non-obviousness.